

IN THE CLAIMS:

In accordance with the Revised Rules under 37 C.F.R. 1.121, please amend the claims as shown below and indicated as “currently amended.” Also shown below are claims that may be indicated as original, previously amended, cancelled, withdrawn, previously added, new, reinstated, previously reinstated, or re-presented.

1. (currently amended) A bumper for mounting on a frame of a vehicle, the bumper comprising:

an elongated beam configured to be operatively mounted to the frame of the vehicle;

a foam portion extending along a portion of the beam;

a fascia surrounding a portion of the foam portion, the fascia and the foam portion operatively attached to the beam;

the foam portion having a plurality of recesses formed therein, the recesses extending through a predetermined thickness of an inside portion of the foam portion, the recesses abutting a portion of the elongated beam;

a plurality of non-metallic circular cell matrixes disposed in and supported by at least some, but not all, of the plurality of recesses, and configured to absorb energy resulting from impact force applied to an external portion of the bumper, the cell matrix configured to be removeably replaced upon separation of the foam portion from the beam to expose the recesses thereby allowing removal and replacement of the non-metallic circular cell matrixes through an open end of the exposed recess; and

a high density panel disposed adjacent at least one of the plurality of non-metallic cell matrixes, ~~said high density panel disposed against the elongated beam on a first end and extending forward of the one of the non-metallic cell matrixes on a second end to preload the elongated beam during a collision.~~

2. (original) The bumper according to claim 1 wherein the matrix forms an interference fit with the recess.

3. (original) The bumper according to claim 1 wherein the matrix is secured within the recess with chemical adhesive.

4. (previously cancelled) ~~The bumper according to claim 1 wherein the matrix is molded~~

~~within the recess with the foam portion during a molding process and is non-destructively removeable from the recess.~~

5. (original) The bumper according to claim 1 wherein the recess extends through the foam for the predetermined distance of about between forty percent to eight-five percent of a thickness of the foam portion.

6. (original) The bumper according to claim 1 wherein the recess extends through the foam portion for the predetermined distance of about between sixty percent to ninety percent of a thickness of the foam portion.

7. (previously amended) The bumper according to claim 1 wherein a front portion of the matrix located proximate the elongated beam is substantially flush with a front portion of the foam portion along an interface defined between the beam and the foam portion.

8. (original) The bumper according to claim 1 wherein the foam portion is formed of low-density foam.

9. (original) The bumper according to claim 8 wherein the low-density foam has a density of about between two pounds per cubic foot and eight pounds per cubic foot.

10. (original) The bumper according to claim 1, ~~wherein further including a high-density panel disposed within the recess;~~ the high-density panel disposed in front of the matrix and configured to distribute impact force directed against the bumper across a portion of the matrix.

11. (original) The bumper according to claim 1 wherein the matrix is sandwiched between a plurality of high-density panels, said matrix and high-density panels retained within the recess.

12. (previously amended) The bumper according to claim 10 wherein the high-density panel is selected from the group consisting of high-density foam, high-molecular weight structural foam molding, high-density composite material, polyester sheet-molded material, vinyl-ester sheet-molded material, thermoplastic composite, bulk-molded compound, and high-molecular weight injection molded polyethylene.

13. (currently amended) A bumper for mounting on a frame of a vehicle, the bumper comprising:

an elongated beam configured to be operatively mounted to the frame of the vehicle;
a foam portion extending along a portion of the beam;

a fascia surrounding a portion of the foam portion, the fascia and the foam portion operatively attached to the beam;

the foam portion having a plurality of recesses formed therein, the recesses extending through a predetermined thickness of an inside portion of the foam portion, the recesses abutting the elongated beam;

a plurality of non-metallic integrated cylindrical cell matrixes disposed within at least some, but not all, of the recesses, the cell matrixes formed of a plurality of circular cells having a longitudinal axis, the cell matrixes configured to be releasably removed from the recesses upon separation of the foam portion from the beam to expose the recesses;

the matrix configured to absorb energy resulting from impact force applied to an external portion of the bumper in a direction generally along the longitudinal axis; and

a high density panel disposed adjacent at least one of the plurality of non-metallic cell matrixes, ~~said high density panel disposed against the elongated beam on a first end and extending forward of the one of the non-metallic cell matrixes on a second end~~ to preload the elongated beam during a collision.

14. (previously added)The bumper according to claim 13 wherein the matrix forms an interference fit with the recess.

15. (previously added)The bumper according to claim 13 wherein the matrix is secured within the recess with chemical adhesive.

16. (previously added)The bumper according to claim 13 wherein the recess extends through the foam for the predetermined distance of about between forty percent to eight-five percent of a thickness of the foam portion.

17. (previously added)The bumper according to claim 13 wherein the recess extends through the foam portion for the predetermined distance of about between sixty percent to ninety percent of a thickness of the foam portion.

18. (previously added)The bumper according to claim 13 wherein a front portion of the matrix located proximate the elongated beam is substantially flush with a front portion of the foam portion along an interface defined between the beam and the foam portion.

19. (previously added)The bumper according to claim 13 wherein the foam portion is formed

of low-density foam.

20. (previously added)The bumper according to claim 13 wherein the low-density foam has a density of about between two pounds per cubic foot and eight pounds per cubic foot.